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ABSTRACT

The stated purpose of this report "is to give the reader a recent definition of general education, a college president's persepctive of general education and high technology, and sources the reader can examine for curriculum planning." The definition of general education is a paragraph quoted from Cohen and Brawer's book "The American Community College" (1982). The college president's perspective is provided by including a 9-page paper by H. James Owen entitled "High Technology and General Education". Mr. Owen is President of the Tri-Cities State Technical Institute, Blountville, Tennessee. The bibliographic sources are provided via a 25-item selected bibliography entitled "General Education and Occupational Curricula". Mr. Owen's examination of the published views of administrators of two-year colleges across the country provides support for strengthening the general education component of associate degree programs in technical education. General education and high technology are found to be complementary to one another. The rapidity with which technology is advancing has led to the virtual overnight obsolescence of some jobs and creation of others. Such a rapidly changing labor market has necessitated the development of high technology programs that will: (1) teach a specialized technology application with a high market value, and (2) provide program graduates with a commitment to lifelong learning and transferable skills necessary to hold a job, move into a new job, or change careers. (MN)

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General Education for Technical Education

by
Charles R. Doty*

In The Chronicle of Higher Education (April 13, 1981, p. 1) one headline declared "General Education Called a 'Disaster Area' by Carnegie Officials; Need for Revival Seen." In the state of New Jersey, proposed new state regulations (9:4--1.6 Educational programs - General Education Requirements) have caused each community college in the state to examine and submit a document describing the general education plan. In designing these plans, one of the greatest problems was the concern for general education and technical education. Quoting one community college administrator, "To achieve our general education plan we had to dump some technical courses. We are not sure our graduates will be ready to enter the job market prepared now." The purpose of this report is to give the reader a recent definition of general education, a college president's perspective of general education and high technology, and sources the reader can examine for curricular planning.

Cohen and Brawer (1982) in their text The American Community College defined general education:

> General education is the process of developing a framework on which to place knowledge stemming from various sources, of learning to think critically, develop values, understand traditions, respect diverse cultures and opinions, and most important, put that knowledge to use. It is holistic, not specialized; integrative, not fractioned;

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> suitable more for action than for contemplation. It thus differs from the ideal of the collegiate function. The liberal arts are education as; general education is education for. (p. 312)[1]

At the 1983 fall seminar of the American Association of Community and Junior Colleges' National Council on Occupational Education, the theme of high technology and general education was presented and discussed. The attached article (reproduced with permission and also available in the summer 1984 issue of Community College Review) by Dr. H. James Owen, President of Tri-Cities State Technical Institute, Blountville, Tennessee, was based upon his presentation at the seminar. This article contains his perspectives and recent sources on the subject which should be of value to the reader. In addition to Dr. Owen's material, a selected bibliography on general education and occupational curricula is given for the benefit of the reader.

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[1]Cohen, A. M. and Brawer, F. B. The American Community College. San Francisco, CA: Jossey-Boss Publishers, 1982. (ED213469)

High Technology and General Education
By
H. James Owen

Introduction

A case can definitely be made today for strengthening the general education component in the associate degree programs which prepare technicians for today's and tomorrow's jobs. The recent best selling book by John Naisbett entitled Megatrends identifies numerous societal factors which we must deal with now and in the future. The transition from manufacturing to an information society is upon us. The importance and pervasiveness of the computer has heightened our awareness. Many community and technical colleges are considering a requirement that all students complete an introductory computer course or demonstrate computer literacy prior to graduation. Naisbett's work requires us to consider increased emphasis on general education in order that we turn out people who can reason, think and communicate clearly so that their skills would not become obsolete from overspecialization.

Review of the Literature

.....In his guest editorial entitled "National Trends and Community Colleges," Dr. William Flinn of the Community College of the Air Force in the Newsletter of the AACJC Council for Occupational Education says, "A critical question for community colleges is what business are we really in?" Flinn suggests that we should develop a one phrase statement of what business we're in and involve the staff within the college in long range planning, followed up by making sure that every member knows and understands the agreed upon statement.

.....A preliminary presentation by the National Task Force to Redefine the Associate Degree was presented at the 1983 annual meeting of the American Association of Community and Junior Colleges. The associate degree remains significant nationally and the task force noted that it is still "alive and well" in the United States. The Task Force Survey indicated that the expectation, nationally, concerning the associate degree is that it virtually always has had a basic core of general education. This is exceedingly important today with more emphasis on a higher level of science and technology incorporated in the associate degree. The task force report indicates that the associate degree needs further review at every institution due to the increasing number of high technology programs, and the effect that high technology programs are having on the curriculum. With the emphasis on the higher level technologies today, increased emphasis on writing, mathematical skills and scientific principles is essential. The task force further suggests an increase in the competency based approach to the completion of an associate degree. Their survey results indicate that community colleges tend to want more vigor in their educational offerings, particulary in the area of general education, plus there is an increased tendency now towards more structure in the curriculum. An "associate in high technology degree" is also suggested which might incorporate both liberal learning and the technology areas. Such a degree could be developed in concert with business and industry.

....A recent article by Rippey and Campbell in the Journal of Studies in Technical Careers identifies needed employee traits that are desired by today's employers. A number of studies are cited in various states relative

to occupational program completers and in virtually every case business and industry point out that reading, writing and math skills, along with dependability and personal interest in one's job are essential for new entrants in their company. A recent survey of nearly 300 industries in 15 states conducted by AACJC, ACCT, and the Electronic Industries Association (EIA) identified similar competencies as being desired. Mathematical competence and understanding of basic blueprints, communication skills and work experience were all high on the list of competencies desired of an entry-level technician. Rippey and Campbell go on to note that many students often take only the courses in the major field in their occupational program areas to prepare for employment. This will oftentimes get them a job; however, if they desire to move forward in their chosen field, or to change fields, the associate degree and its accompanying general education requirements will usually be needed in the future.

.....A recent study by the jobs skills task force in Tennessee entitled Meeting Future Job Skills Requirements in Tennessee, identified 26 new or rapidly expanding job opportunities. Twenty of the 26 were at the technician level; training programs for this level require strong components in mathematics, science, and communication skills.

.....In her recent study entitled Technician Manpower in the South: High Tech Industries or High Tech Occupations?, Galambos makes a most persuasive argument. She states that "two year postsecondary institutions are strongly advised to provide broad-based generic programs in basic technologies, allowing for an individual's adaptation across a wide range of occupational applications, rather than aiming at a proliferation of inordinately

specialized programs." That statement may well hit the nail squarely on the head concerning the value of general education in today's technician training programs leading to high technology occupations.

Models For Revitalizing General Education

.....In his recent monograph entitled At the Crossroads: General Education in Community Colleges, Conrad identifies forces which support reform in general education. These four factors include:

1. The current visibility of general education
2. Concern about quality
3. A potential reduction in articulation problems
4. The current receptivity of students

Others which could be added include the results of existing national studies and the increasing influence of business and industry. The approach outlined by Conrad appears to be quite global, however, and may not be of much direct use to many community and technical colleges.

Most attention nationally is being focused on the approaches being outlined by Robert McCabe, the President of Miami-Dade Community College. In an interview with Dubocq in 1981, McCabe outlined his six point strategy of reform as follows:

1. Colleges must increase their expectations of students.
2. Colleges should become more directive in their program designs.
3. Colleges should implement variable timetables for completion of programs.
4. Colleges must provide more information to students.
5. Strict guidelines must be set for suspension and dismissal of students who fail to meet a college's standards of progress.
6. Colleges must make a commitment to hold to their standards.

The general Education Proposal was first published at Miami-Dade in 1977. Zimmerman had stated eleven years earlier that few models existed and many institutions were yet to state general education goals. Hammons saw potential in the model as proposed by Miami-Dade through the General Education Proposal.

Lukenbill and McCabe along with Marty sounded relatively early calls for strengthening the liberal arts as a part of associate degree programs in the late 70's. McCabe's six point strategy above followed closely on their earlier efforts. While some would say that McCabe is closing the open door through his approach, he does not agree. McCabe argues that we must set high expectations in order to "save the open door and to achieve the objectives of both access and excellence." The direction of general education at Miami-Dade has indeed been revised. The general education areas have been restructured and interdisciplinary general education courses--one each--in science, social science, humanities and communications have been created. This approach is reminiscent of the "C" courses established at the University of Florida in the 1950s and '60s. McCabe asks the basic question: "What is a qualified employee?" He then answers his own question: "Someone who can read, write and process data and information. Thus, the most important vocational skills are those taught in the academic part of the college."

McCabe and Skidmore in a more recent article argue that the

> first priority must be to build a strong base of academic competence before permitting students to significantly diversify their curricula. The curriculum of every student must include substantial requirements in reading, writing, and mathematics.

Boyer and Hechinger further point out the continuing need for post-secondary education in line with McCabe and Skidmore when they conclude that:

> from now on, almost all young people, will, at some time in their lives, need some form of postsecondary education if they are to remain economically productive and socially functional in a world whose tasks and tools are becoming increasingly complex.

The increasing demand for lifelong learning with strength in general education is becoming mandatory as the level of technology increases and the expectation of employers for employees becomes more stringent.

Summary

We may well conclude then that general education and high technology are not only not exclusive of each other but are complementary. And the best equipped "high technologist" is the one who possesses the proper blend of the two. The broader overall objectives for high technology training were outlined by Roney in his recent article "A Core Program for High Technology: Emphasis on Math and Science." He outlines high technology program objectives that (1) teach principles that are universal, unchanging, and transferable, and (2) teach a specialized technology application with a high market value. This approach seems to make sense in today's fast-paced and everchanging technology.

Without question, the rapidity with which change is occurring in industry--processes, machines and management--change that creates new positions overnight and eliminates others during the same period--is evidence that broad general education skills are needed to continue to hold a job, to move into new jobs and to change careers. Part of the value of general education today must be instilling in adults a commitment to lifelong learning--to continually come back for development and refreshment--just to keep up with today's advancements.

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